BEFORE THE

Federal Communications Commission
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
National Radio Systems Committee DAB	)	DA 02-899
Subcommittee's Evaluation of the iBiquity	)	MM Docket No. 99-325
Digital Corporation IBOC System	)	
Part 2 – AM IBOC	)	

To: The Commission

COMMENTS OF INFINITY BROADCASTING CORPORATION

I. INTRODUCTION AND BACKGROUND

Infinity Broadcasting Corporation ("*Infinity*"), by its attorneys, hereby submits comments in response to the Public Notice DA 02-899 issued by the Federal Communications Commission ("*FCC*" or "*Commission*") on April 19, 2002 in MM Docket No. 99-325 (the "*Public Notice*"). In the Public Notice, the FCC requested comments on the report filed by the National Radio Systems Committee ("*NRSC*") on April 16, 2002 (the "*NRSC Report*"), which evaluated the performance and compatibility of iBiquity's hybrid mode AM in-band, on-channel ("*IBOC*") digital audio broadcasting ("*DAB*") system.

Infinity is one of the largest radio broadcasting companies in the United States, operating 138 FM and 47 AM stations in 41 markets. Infinity's radio stations serve diverse segments of the population, and offer a wide variety of programming formats. Infinity's former parent corporations (Westinghouse Corporation and CBS Corporation, the latter of which subsequently merged with Viacom Inc.) were two of iBiquity's original founders, and Infinity remains squarely behind iBiquity's efforts to develop and implement IBOC DAB. As a major

operator of AM radio stations, Infinity is particularly concerned about improving the technical quality of the AM band, and is fully supportive, and urges the Commission's support of, iBiquity's AM IBOC DAB system.

The AM radio service, even more so than the FM radio service, will benefit tremendously from the technical improvements offered by iBiquity's IBOC DAB system. For decades, AM broadcasters and their listeners have had to deal with the lesser signal quality and fidelity which are inherent in AM broadcasting. AM broadcasters have competed well with technically superior FM stations in their markets by continually offering high quality and compelling entertainment and informational programming, but now face new difficulties in competing with emerging digital media like satellite-delivered digital radio, cable-delivered radio, and MP3 audio, to list a few. AM IBOC is a superior technology that will allow AM broadcasters to significantly improve the quality of their service and which stands to revitalize the AM band, allowing AM broadcasters to remain competitive and to provide the range of programming and quality of reception that the public needs and demands.

AM broadcasters have made myriad invaluable contributions to the American public over many years. As the Commission itself noted in the proceedings to establish the AM expanded band, for the first 50 years after its debut in the 1920s, AM radio's contribution to daily life, as America's first national medium of mass communications, was unquestioned:

> AM radio united the nation in good times and bad. It brought the voices of national and international leaders into our homes, making us witnesses to history. It entertained us. Each night, families and friends gathered around the radio and tuned to AM stations to learn of world, national and local events and to hear the latest episode in their favorite radio show.

The Commission went on to recognize, however, that:

> [d]uring the last twenty years, ...channel congestion, interference and low fidelity receivers have taken their toll, dulling the competitive edge of this once vital

service. Not surprisingly, once loyal AM listeners have shifted their allegiance to newer mass media services that offer them higher technical quality.[1]

Infinity strongly supports the NRSC's conclusion that AM IBOC "offers a chance to revitalize AM broadcasting – offering near FM-quality stereo reception."[2] Without a doubt, both the AM and FM bands will reap substantial benefits from the introduction of IBOC DAB; however, it is clear that the AM service is particularly in need of the vast technical improvement that IBOC DAB will bring. iBiquity's AM IBOC system provides AM broadcasters with the best opportunity to establish the quality and fidelity in the AM band necessary to be competitive with the emerging new digital technologies that the public now embraces.

Infinity concurs with the NRSC's determination that the iBiquity AM IBOC system performs well, that it offers a substantial and noticeable upgrade as compared to existing analog AM service, and that it is compatible, in all material respects, with existing analog technology, which, with the Commission's support, will permit broadcasters to introduce hybrid AM IBOC in the near-term without disrupting their analog operations, and which will allow the public to continue to use their existing analog AM receivers during the hybrid phase of digital operations. Infinity also agrees with the NRSC that iBiquity's AM IBOC system delivers audio quality comparable to that of analog FM, which will allow AM stations to be a viable alternative to FM stations, and which will provide AM broadcasters with the opportunity to expand their program offerings, including the reintroduction of music programming which has become increasingly scarce on AM radio due to the problems with sound quality and fidelity. Infinity expects IBOC to revitalize the AM band, and allow the AM broadcast service to become more

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[1] *Review of the Technical Assignment Criteria for the AM Broadcast Service*, Notice of Proposed Rule Making, 5 FCC Rcd 4381 (1990).

[2] *Evaluation Of The iBiquity Digital Corporation IBOC System. Part 2 – AM IBOC*, National Radio Systems Committee, adopted by the Digital Audio Broadcasting's Evaluation Working Group on April 6, 2002 (the "*NRSC*

Footnote continued

attractive as an advertising medium, encouraging more investment in and improvements to the services that can be offered by AM broadcasters.

Infinity is prepared to implement the higher quality service that, as the NRSC Report demonstrates, AM IBOC DAB will provide to the public, and strongly urges the Commission to authorize the launch of AM IBOC DAB, and its counterpart FM IBOC DAB, in 2002.

II. AM IBOC PROVIDES MUCH NEEDED ENHANCEMENT TO THE CURRENT ANALOG AM RADIO SERVICE

The AM band has been plagued for many years with high levels of natural and man-made interference, which has been heightened by the cumulative effects of years and years of new AM station allocations. In the past, the Commission has made efforts to improve the AM band, such as its approval of AM stereo operation and, in the 1980s, its determination to open the expanded band to allow a limited number of stations to relocate into the new AM spectrum in order to alleviate some of the interference to the original AM channels.

Unfortunately, AM stereo never realized its potential, partially because there was never a mandated AM stereo technical standard, and the migration to the AM expanded band, which remains in the implementation stage, is not an option available to the vast majority of AM stations. In addition, the audio bandwidth of most AM receivers has been reduced to less than 3 kHz and therefore, as noted in the NRSC Report, many AM listeners today enjoy their favorite AM stations with less than telephone-quality audio bandwidth on very narrow-band receivers.[3]

The NRSC's extensive and comprehensive testing program involved independent laboratories, an independent testing contractor, and iBiquity's own engineers, and included

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Report") at 8.

substantial field-testing in which engineers collected "real world" performance data from four AM stations, including Infinity's station WWJ(AM), Detroit, Michigan, which were equipped with hybrid AM IBOC DAB transmission systems. The hybrid systems allowed the NRSC to analyze the actual effect of embedding the digital AM IBOC signal into a traditional analog broadcast, simulating the effect of hybrid AM IBOC after full implementation. Based on data collected from the field and laboratory tests, the NRSC concluded that (i) the iBiquity AM IBOC system will allow AM broadcasters to provide two-channel stereo audio quality rivaling analog FM stereo; (ii) the digital performance of the AM IBOC system generally represents a significant improvement over today's analog AM services; (iii) AM IBOC will make it possible for AM broadcasters for the first time to provide data services; and (iv) AM IBOC "puts broadcasters on an efficient path to an all-digital service."[4] Infinity agrees with, and is encouraged by these conclusions, and submits that the Commission's approval of IBOC DAB would be a significant step forward in boosting the AM broadcast industry's ability to serve the public.

III. IBOC PROVIDES A DRAMATIC IMPROVEMENT IN PERFORMANCE IN THE AM RADIO BAND

The NRSC Report demonstrates convincingly that IBOC will significantly improve the quality of the AM service. In evaluating IBOC's performance, the NRSC's evaluation working group utilized multiple criteria, each of which falls under either the category "digital performance," which refers to performance of the IBOC digital signal, or "analog compatibility," which addresses the impact of the IBOC signal on analog reception during the hybrid mode, using existing analog receivers.

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3 *Id.* at 8.

4 *Id.*

In particular, Infinity concurs with, and is very encouraged by the following conclusions regarding digital performance contained in the NRSC Report:

Audio Quality: The iBiquity hybrid AM IBOC system demonstrates significantly improved audio quality compared to existing analog AM in mobile listening environments, and in a variety of impairment conditions tested in the laboratory. Further, under these impaired conditions, AM IBOC audio quality is comparable to that of analog FM radio in an unimpaired environment[5].

Service Area: The hybrid AM IBOC digital coverage during the daytime is comparable to analog coverage along radial routes tested, and due to AM IBOC's improved resistance to various types of interference -- including co- and adjacent channel, impulse noise, and interference from power lines -- AM IBOC service may be available in areas where analog service is currently of unacceptable quality due to such interference.[6]

Durability: iBiquity's hybrid AM IBOC system, compared to analog AM, is substantially more robust under impulse noise and co- and adjacent channel interference conditions.[7]

Auxiliary Data Capacity: The iBiquity hybrid AM IBOC system allows auxiliary data transmission with a minimum capacity of 0.4 kbps. This represents a significant new capability and opportunity for the AM broadcast service, as existing AM analog services do not support the carriage of any auxiliary data.[8]

Stereo Separation: AM IBOC receivers are expected to provide superior stereo separation compared to analog AM receivers, the vast majority of which have no stereo

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5 *Id.* at 9.
6 *Id.*
7 *Id.* at 10.

capability whatsoever.[9]

The NRSC AM Report convincingly demonstrates that iBiquity's IBOC system will enhance signal robustness, which will reduce impairment to radio signals such as multipathing and noise, increase the signal's resistance to natural and man-made obstructions, and improve signal reception at the outer perimeters of a station's coverage area, thereby enhancing the service provided by broadcasters. Infinity concurs with the NRSC's conclusion that "iBiquity has developed an attractive solution to improve AM listening based on the best of today's available technology."[10]

IV. COMPATIBILITY PROBLEMS WITH AM IBOC WILL BE MINIMAL, AND THE BENEFITS WILL FAR OUTWEIGH ANY ADDITIONAL INTERFERENCE IN THE HYBRID STAGE

Infinity concurs with the NRSC's conclusion that the AM IBOC system has little effect on the host analog signal, and that, although the introduction of AM IBOC will be noticeable to some listeners of the host analog station using certain analog receivers, those listeners are not expected to find that their audio quality is sufficiently degraded so as to impact listening.[11]

The NSRC Report does note, however, that under certain circumstances in certain areas, there may be some interference to first adjacent and second adjacent channel listeners, primarily those listeners using hi-fi and portable receivers (automobile radios, which operate at a narrower bandwidth are not expected to receive significant

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8 *Id.*
9 *Id.*
10 *Id.* at 9.
11 *Id.* at 11.

interference)[12]. Such minor limitations of iBiquity's hybrid AM IBOC system, however, are minimal, manageable, and should not be cause to delay the implementation of the IBOC AM system, as the problems that arise from potential interference in certain circumstances during the hybrid phase will be far outweighed by the vast benefits that will be realized from iBiquity's IBOC technology.

V. AM IBOC SHOULD BE IMMEDIATELY AUTHORIZED AS A DAYTIME-ONLY SERVICE

The NRSC Report did not indicate any substantial problems with nighttime AM IBOC service, instead noting that there is insufficient information at this time about the performance of hybrid AM IBOC during nighttime operations to draw any conclusions about nighttime AM IBOC operations. The conclusions about AM IBOC DAB contained in the NRSC Report were otherwise overwhelmingly positive, and, in Infinity's view, sufficient to support the immediate introduction of at least a daytime-only AM IBOC. The NRSC Report notes that no test results were obtained by the NRSC on skywave reception, and that additional testing would be needed before the NRSC could further comment on the nighttime compatibility of hybrid AM IBOC[13].

The implementation of a daytime-only AM IBOC service, in conjunction with a full-time FM IBOC service, would not be unduly burdensome to AM stations. Infinity concurs with the NRSC that a vast number of AM stations already operate with different directional patterns and power levels during day and night, and that it should therefore not be burdensome to

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12 *Id.* at 11.

13 *Id.* at 8-9.

switch off the IBOC digital signal during nighttime hours.[14] Infinity therefore supports the NRSC's recommendation that AM IBOC be immediately authorized for daytime hours only, and that additional nighttime testing of the AM IBOC system be conducted during the next several months. There is sufficient information in the record at present to allow the Commission to authorize full-time FM IBOC and daytime-only AM IBOC services. This will provide broadcasters with the flexibility to begin to upgrade to digital where daytime-only service would be of value to listeners, while additional testing is conducted and the results are analyzed. A delay in the introduction of AM IBOC could result in a delay in the overall introduction of IBOC, and is contrary to the interests of the public and broadcasters.

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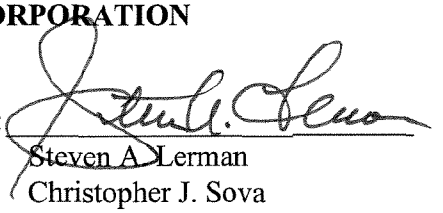
[14] *Id.* at 9.

VI. CONCLUSION

For the reasons set forth above, Infinity respectfully urges that the Commission expeditiously endorse the iBiquity AM IBOC system as the standard for DAB, and allow broadcasters to implement full-time hybrid-mode FM IBOC DAB and daytime-only AM IBOC DAB at the earliest possible time.

Respectfully submitted,

INFINITY BROADCASTING CORPORATION

By: 

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